

4.20 CUMULATIVE IMPACTS ANALYSIS

In accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), this analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future projects within the Project area that were identified at the time of publication of the Notice of Intent/Notice of Preparation (NOI/NOP) in March 2004. Cumulative effects can result from individually minor but collectively significant actions taking place over time. For example, a project may remove only a small area of land from agricultural production, but it may be part of a vast conversion of agricultural land in the area.

These other projects were identified through consultation with planning and engineering departments of local governments, the Ventura County Air Pollution Control District, the California State Lands Commission (CSLC), the International Cable Protection Committee, and the State of California's Office of Planning and Research. Projects without similar impacts were not considered. In addition, projects occurring beyond the vicinity of the proposed Project or within a time frame such that their impacts would not contribute to a cumulative impact are not considered. Projects that may have similar impacts are described below but generally include port expansion, offshore mineral development and processing, residential development, and military operations. Table 4.20-1 is a summary of proposed and current projects in the area of the Applicant's proposed Project that could, in combination with the proposed Project, have a cumulative impact. As discussed in Section 2, "Project Description," the proposed Project consists of four main types of facilities:

- An offshore deepwater port (DWP) liquefied natural gas (LNG) import terminal (the floating storage and regasification unit [FSRU]) that would be anchored and moored on the ocean floor for the life of the Project;
- Offshore pipelines;
- A shore crossing, using horizontal directional drilling (HDD) below the beach and a connection to the existing onshore natural gas infrastructure; and
- Onshore pipelines and related facilities.

4.20.1 Other Offshore Projects

4.20.1.1 Crystal Energy LLC Clearwater Port LNG Importation Facility

Crystal Energy is proposing to use Platform Grace, an existing oil and gas platform currently owned by Venoco, Inc., as an LNG import and regasification facility. The platform is located approximately 10.5 nautical miles (NM) (12.1 miles or 19.4 kilometers [km]) offshore in Federal waters and approximately 11.3 NM (13 miles or 20.9 km) west of Oxnard. The proposal would require the installation of several new components on or adjacent to the platform, including a Satellite Service Platform floating docking system, an LNG transfer system, a cool-down tank, six LNG pumps, and six LNG vaporizers, as well as an upgrade to the platform's power production

capability. An 11.3-NM (13-miles or 20.9-km), 32-inch (0.8 meter [m]) diameter subsea pipeline would be installed from the platform to the Reliant Energy Mandalay Generating Station. Once onshore, the pipeline would extend another 11.3 NM (13 miles or 20.9 km) from the Reliant Energy Generating Station to the Southern California Gas Company (SoCalGas) Center Road Valve Station. The specific routes to the valve station have not been selected to date.

Crystal Energy plans to use up to 1,000-foot-long (305 m) LNG carriers to transport LNG to Platform Grace, entering the vessel traffic separation lanes from the south. Two or three dedicated tugs would be used to assist the carrier with docking. An estimated 80 LNG carriers would visit the platform annually. In addition, there would be marine traffic going to and from the platform with supplies and crew.

4.20.1.2 Hubbs-SeaWorld Research Institute Grace Mariculture Project

The Hubbs-SeaWorld Research Institute (HSWRI), with support from ChevronTexaco Environmental Management Corporation and Venoco, Inc., is seeking approvals to operate a marine aquaculture (mariculture) project for three years at Platform Grace, which is located 10.5 NM (12.1 miles or 19.4 km) offshore of Ventura County in Federal waters. Platform Grace would provide infrastructure and services for the research proposed, including available deck space, utilities, and daily access by supply boats from Port Hueneme. Potential conflicts associated with the use of Platform Grace include the following scenarios: (1) if the Grace Mariculture Project were permitted in the near future, it could begin operations prior to a decision being made on the proposed Crystal Energy LNG project (discussed above); (2) if the Grace Mariculture Project were permitted but the Crystal Energy project was not, then the Grace Mariculture Project would still need to obtain all necessary permits before it could continue operations beyond the three-year permit timeframe requested by HSWRI; and (3) if both projects were permitted, then the Grace Mariculture Project would stop operations when the Crystal Energy LNG project was constructed.

As proposed, the roughly 640-acre (249-hectare [ha]) project would include four submerged cages around the platform as well as tanks on the main platform deck for hatchery and nursery operations. Species produced would include finfish such as white seabass, striped bass, California halibut, and California yellowtail and bluefin tuna, as well as shellfish such as red abalone and mussels. The project is currently undergoing NEPA processing. If the Grace Mariculture Project is approved as a three-year trial project, as proposed by HSWRI, it would conclude before BHPB would begin installation of the proposed LNG DWP (estimated in 2008). Consequently, no cumulative impacts are anticipated. This project is not considered to be a foreseeable future project that would occur within the timeframe of construction and operations of the proposed Project and so is not discussed further.

4.20.1.3 Port of Long Beach Sound Energy Solutions (SES) Onshore LNG Terminal

Sound Energy Solutions has proposed constructing and operating a 27-acre (10.9 ha) onshore LNG receiving terminal at Pier T at the Port of Long Beach. The facility would include a LNG carrier berth, two full containment storage tanks, shell and tube vaporizers, metering and odorizing facilities, and a natural gas pipeline connecting to an existing SoCalGas pipeline. The project would have an average natural gas throughput of 700 million cubic feet per day (MMcfd). The proposed SES project is not in the vicinity of the proposed Project; the only cumulative impact associated with this facility and the proposed Project would be an increase in LNG carrier traffic in the vicinity of the Port of Long Beach. This is discussed in the marine traffic section below (Section 4.20.3.2).

4.20.1.4 Vandenberg Air Force Base Ongoing Operations

Vandenberg Air Force Base (VAFB), the headquarters for the 30th Space Wing, occupies approximately 98,400 acres (39,822 ha) and is located about 50 miles (80.5 km) northwest of Santa Barbara. The U.S. Air Force's (USAF) primary missions at VAFB are to launch and track satellites in space and to test and evaluate strategic intercontinental ballistic missile (ICBM) systems (Department of Defense 2002). Existing operations at VAFB are part of the project baseline. Given that most activities associated with VAFB are space launches, activities at VAFB would not contribute cumulative effects in conjunction with the proposed Project and therefore is not discussed further.

4.20.1.5 Channel Islands National Marine Sanctuary Boundary Expansion

The Channel Islands National Marine Sanctuary (CINMS) encompasses 1,252 square NM (1658 square miles, 4294 square km) surrounding the five northern Channel Islands. The sanctuary boundaries extend from the mean high tide to 6 NM (6.9 miles, 11 km) offshore surrounding Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara Islands. The management plan for CINMS was put into effect in 1982 and currently is being updated. An EIS is being prepared to analyze the potential impacts of expanding the boundaries of the sanctuary. Depending on the boundary concept selected, Cabrillo Port may or may not be within sanctuary boundaries. The installation of the FSRU and pipeline will not preclude the sanctuary from including this area in its new boundaries. However, if the proposed FSRU location is within the new boundaries being considered, this will be taken into consideration by CINMS when making final decisions (i.e., the pros/cons of including that area in the marine sanctuary) (Mobley 2004).

4.20.1.6 Offshore Oil and Gas Leasing

Currently, there are 79 Outer Continental Shelf (OCS) oil and gas leases offshore of Southern California. These include 39 producing leases and 36 non-producing leases offshore of San Luis Obispo, Santa Barbara, and Ventura Counties and four producing

leases off of Los Angeles and Orange Counties. Production from these leases is expected to continue for the next five to 20 years. The Minerals Management Service (MMS) currently has no proposals for decommissioning offshore facilities. Development of the 36 non-producing leases is uncertain due to ongoing litigation. In addition, four undeveloped leases are under appeal. MMS is preparing six Environmental Assessments (EAs) to analyze the environmental impacts of granting lease suspensions for the undeveloped leases and six Consistency Determinations for the California Coastal Commission. Only shallow hazard surveys using an air gun and biological surveys would be conducted on two of the undeveloped units in the western Santa Barbara Channel and Santa Maria Basin during the suspension periods. The estimated timeframe for these surveys is July 2005 to August 2007.

4.20.1.7 Point Mugu Sea Range Operations

Cabrillo Port lies immediately outside of the Point Mugu Sea Range. Missile and aircraft overflights associated with ongoing operations on San Nicolas Island would occur about eight times per year along the northern and southern shorelines of the island.

The Navy at Point Mugu is using an existing underwater launch site near San Clemente Island and a soft-landing missile recovery area at San Nicolas Island to support Tomahawk Land Missile Testing. The San Nicolas Island landing site is used only if the missile is in full control and must be guided to ensure a soft impact termination (parachute recovery). Tomahawk testing and training occurs an average of once per year (Department of Defense 2002; Parisi 2004). San Nicolas Island is more than 40 miles away from the FSRU; therefore, it is not likely that activity occurring on the Island would contribute to cumulative impacts in conjunction with the proposed Project.

The Navy at Point Mugu has established an inert ordnance delivery area on San Nicolas Island. Inert bombs are delivered from Navy or Marine Corps fixed-wing aircraft using laser-targeting systems to identify targets. Overflights associated with inert ordnance delivery occur about 10 times per year, but these overflights do not occur at low altitudes (Department of Defense 2002; Parisi 2004).

The National Aeronautics and Space Administration (NASA) is evaluating the Hyper-X research vehicle, a Mach-10 aircraft that could provide access to spacecraft. The parts of the program on the Point Mugu Sea Range include B-52 taxi and captive carry flight tests, research vehicle booster release and splashdown, research vehicle free flight, and research vehicle splashdown (Department of Defense 2002).

The USAF at Edwards Air Force Base tests the F-22 aircraft's ability to perform low-level flight maneuvers at supersonic speeds. Twenty-four low-level supersonic sorties per year over would take place over open ocean areas within the Point Mugu Sea Range and in adjacent air space off the coast of California. Flight tests would involve use of one F-22 aircraft, an F-15 or F-16 as a chase aircraft, and a tanker aircraft for aerial refueling (Department of Defense 2002).

4.20.1.8 SOCAL Range Complex

The SOCAL Range Complex is immediately south of the Point Mugu Sea Range. It includes the following training ranges: San Clemente Island, the Southern California Anti-submarine warfare Range (SOAR), FLETA HOT, the shallow water training range (SWTR), and the shore bombardment range (SHOBA).

San Clemente Island (SCI) is the tactical training range complex supporting the SOCAL Range Complex. The San Clemente Island land, air, and sea ranges provide the U.S. Navy, U.S. Marine Corps, and other military services with space and facilities that they use to conduct readiness training. The SOAR Range supports aircraft, surface ships, and submarines conducting basic through advanced level training against threats from submarines. SWTR is a proposed underwater range that may be installed in the next two years. FLETA HOT is a live-fire exercise range and an aircraft emergency jettison area. SHOBA is a shore bombardment and gunnery range for naval gunfire support (Tahimic 2004; Parks 2004).

LNG carriers would transit the SOCAL Range Complex on the course to the FSRU. The cumulative impacts of activities on the Complex are only applicable to marine traffic because of its distance from the Project area and are discussed in the marine traffic cumulative impact analysis (Section 4.20.3.2).

4.20.1.9 Port of Hueneme Warehouse Additions

The Port of Hueneme is a break bulk cargo shipping facility. The majority of its cargo comprises automobiles, fruit, and liquid fertilizer. The Port receives an annual average of 145 automobile ships, 130 refrigerated-cargo conventional vessels, and 12 liquid fertilizer cargo vessels. Currently, six vessels provide daily support to the offshore oil platforms. Three tugs operate at the Port of Hueneme. A 30,000 square foot (2,787 square meters [m^2]) refrigerated warehouse has recently been added to the existing facility and another one is scheduled to be built, which means that two additional refrigerated cargo vessels will be using the Port of Hueneme weekly (Berg 2004).

4.20.2 Other Onshore Projects

4.20.2.1 Ventura County

There are no pending General Plan Amendments to the land use designations near the proposed pipeline routes. Amendments to the Public Facilities Map (regional road network), however, are currently being processed (Smith 2004).

4.20.2.2 City of Oxnard

Construction of Residential Units (Ormond Beach Specific Plan)

The City of Oxnard has received preliminary indication from a developer that a 3,000-unit residential facility is being proposed for the southeast corner of East Hueneme and Arnold Roads. The proposed onshore pipeline route would be located in East Hueneme

Road in front of that development. Although no plans have yet been filed for this development, the city expects to receive an application. Other residential development plans along or near the proposed pipeline routes that are filed with the City of Oxnard include:

- 120 single-family home development at Hueneme and Saviers Roads;
- 64 senior condominium units at Butler and Pleasant Valley Roads;
- 340-unit apartment building at 2000 East Gonzales Boulevard; and
- 455-unit apartment at 1801 Auto Center Road.

Other planned commercial and industrial developments include:

- Office buildings at Outlet Center Drive and Gonzales Road, and
- An industrial facility at 3100 Sturgis Road.

California State Coastal Conservancy Ormond Beach Wetland Restoration Project

In June 2002, the State Coastal Conservancy acquired 265 acres (107 ha) of land adjacent to the Reliant Energy Ormond Beach Generating Station from Southern California Edison for a wetland restoration project. This project is a component of a statewide wetland restoration project. Federal and State resources agencies participating in the Southern California Wetlands Recovery Project are seeking to acquire at least 750 acres (303 ha) more of land at Ormond Beach to meet their goals of restoring coastal wetlands, dunes, and upland habitat along Ormond Beach.

Two additional proposed land acquisitions are being considered within the Project area. The first includes 340 acres (137 ha) northeast of the Reliant Energy Ormond Beach Generating Station owned by Southland Sod. Southland Sod has offered to sell the property to the Coastal Conservancy, conditional upon purchase of other suitable land where the owner would be able to transfer the sod operation. Lastly, the Coastal Conservancy is considering acquiring approximately 300 acres (121 ha) of degraded wetlands north of Naval Base Ventura County (NBVC) Point Mugu (Brand 2004).

Salination Management Project

Reliant Energy has signed a licensing agreement with Calleguas Water District for a salination management project to discharge brine using the Reliant Energy Ormond Beach Generating Station outfall line. The agreement is subject to CSLC approval of the agreement. The proposed water pipeline and facility is within the same area as the Applicant's proposed pipeline located on State Coastal Conservancy property.

4.20.2.3 Santa Clarita and Santa Clara River

Riverpark Development: Construction of Residential Units

The Riverpark project is a 664-acre (269-ha) parcel located just north of Soledad Canyon Road and the Santa Clarita River and east of Bouquet Canyon Road within the central portion of the City of Santa Clarita. The project, involving the construction of approximately 1,152 residential units, is in the early stages of review. The project will include a number of roadway links, including Newhall Ranch Road, a critical link of the Cross Valley Connector. The proposed residential units will comprise 590 apartments, 478 single-family detached homes, and 84 town homes. The project would also include the preservation of 300 acres (121.4 ha) of natural river bottom because the Santa Clarita River extends east-west through the southern portion of the site and a 29-acre (12-ha) park.

Natural River Management Plan

On November 30, 1998, the US Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the California Regional Water Quality Control Board-Los Angeles Region (Los Angeles RWQCB) approved the Natural River Management Plan (NRMP) for the Santa Clara River. The NRMP is a long-term master plan that provides for the construction of various infrastructure improvements on lands adjacent to the Santa Clara River and parts of two of its tributaries. More specifically, the NRMP governs a part of the main stem of the Santa Clara River from Castaic Creek to one-half mile east of the Los Angeles Department of Water and Power Aqueduct and parts of San Francisquito Creek and the Santa Clara River South Fork, Los Angeles County, California. The proposed Project site is located within the part of the river now governed by the NRMP.

Other Projects along the Santa Clara River

Other projects along the Santa Clara River include: the Newhall Ranch Specific Plan, the Cross Valley Connector Project, the Valencia Commerce Center, the Castaic Junction Project, and the Bouquet Canyon Bridge Widening Project. Projects in the vicinity of the pipeline routes along the San Francisquito River include the Tesoro del Valle Project, the West Creek Project, and the North Valencia II Specific Plan. More information is included in Table 4.20-1, below.

4.20.3 Resource-specific Cumulative Impacts

The following subsections describe the cumulative effects that the proposed Project would have, in combination with the other projects (noted above in Sections 4.20.1, "Other Offshore Projects" and 4.20.2, "Other Onshore Projects"), on public safety, marine traffic, aesthetics, agriculture, air quality, marine and terrestrial biological resources, cultural resources, energy resources, geologic hazards, hazardous materials use, land use, noise, recreation, socioeconomics, transportation, water quality and sediments, and environmental justice.

Table 4.20-1 Summary of Proposed and Current Projects in the Area of the Applicant's Proposed Project

Project	Project Type	Brief Description	Project Location	Permitting Status and Schedule
Offshore				
Crystal Energy LNG Importation Facility	Construction and Conversion	Conversion of existing Platform Grace to an LNG receiving and processing facility.	Platform Grace, located 10.5 NM (12.1 miles or 19.4 km) offshore of Ventura County in Federal waters.	Application submitted.
Hubbs-SeaWorld Research Institute (HSWRI)	Mariculture	Marine aquaculture (mariculture) project for three years.	Platform Grace, located 10.5 NM (12.1 miles or 19.4 km) offshore of Ventura County in Federal waters.	Application submitted.
Port of Long Beach	Construction	Construction and operation of an onshore LNG receiving terminal at the Port of Long Beach.	Port of Long Beach.	Application submitted.
Vandenberg Air Force Base (VAFB)	Operations	Launch and detect satellites and ICBM missiles.	98,400 (39822 ha) about 50 miles (80.5 km) northwest of Santa Barbara.	FONSI signed 02/02/00.
Channel Islands National Marine Sanctuary (CINMS)	EIS update and boundary revision analysis	Proposed expansion of the boundaries of the sanctuary.	CINMS encompasses 1,252 NM ² (1,658 square miles, 4294 square km). The boundaries extend from the mean high tide to 6 NM (6.9 miles, 11 km) offshore from Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara Islands.	Draft EIS in review. A Supplemental EIS will address potential boundary changes.
Offshore Oil and Gas Activities	Exploration, production, and decommissioning	Offshore Oil and Gas Leases.	Located in Federal waters offshore of Santa Barbara, Ventura, Los Angeles, and Orange Counties	Development of 36 non-producing leases pending litigation
Point Mugu Sea Range	Operations	Missile and aircraft overflights; Use of an existing underwater launch site to support Tomahawk Land Missile Testing.	Point Mugu Sea Range, San Clemente Island, and San Nicholas Island.	Current Activity.
SOCAL Range Complex	Operations	Training Ranges.	San Clemente Island and associated training ranges.	Current Activity.
Port of Hueneme	Operations and expansion	Break bulk cargo shipping facility.	Port of Hueneme, Ventura County California.	Current Activity.

Table 4.20-1 Summary of Proposed and Current Projects in the Area of the Applicant's Proposed Project

Project	Project Type	Brief Description	Project Location	Permitting Status and Schedule
City of Oxnard				
<i>New Residential and Industrial Development in the City of Oxnard</i>				
Pacific Cove	New Residential Development	120 single family homes.	City of Oxnard Hueneme & Saviers Rd. 222-0-012-305	Under construction.
Condominium	New Residential Development	64 senior condominium units.	City of Oxnard Butler & Pleasant Valley	Under construction.
The Gables	New Residential Development	340 apartment units.	City of Oxnard, 2000 E. Gonzales Rd. 213-0-031-25	Proposed.
Paseo Mercado Apartment	New Residential Development	455 rental apartment units.	City of Oxnard 1801 Auto Center Drive 144-141-015, 025, 035	Proposed.
Unnamed	New Residential Developments	3,000 new units	City of Oxnard, Southeast corner of East Hueneme and Arnold Roads.	Application not yet received by City.
Meridian Office Partners	New Commercial Development	New Office Buildings.	City of Oxnard, Outlet center Drive & Gonzales Road, 1900 Outlet Center Drive, 7,599 sq. ft., 2,906 sq. ft., 2,906 sq. ft., 4,545 sq. ft.	Proposed.
SYSCO Corp. (SYSCO)	New Industrial Development	Industrial Facility.	City of Oxnard, 3100 Sturgis Road 329,725 sq. ft.	Under Construction.
<i>Other Projects in the City of Oxnard</i>				
Calleguas Water District and Reliant Energy	Management Project	Salination Management Project To Discharge Brine Using The Existing Reliant Outfall.	Reliant Energy Ormond Beach.	Agreement subject to approval of CSLC; Draft EIR/EA.
California Coastal Conservancy Ormond Beach Restoration Project	Restoration of Wetlands and Habitat Restoration	Restoration of wetlands and habitat at Ormond Beach.	Ormond Beach.	Acquiring additional land; Feasibility Study Underway.

Table 4.20-1 Summary of Proposed and Current Projects in the Area of the Applicant's Proposed Project

Project	Project Type	Brief Description	Project Location	Permitting Status and Schedule
City of Santa Clarita and Vicinity				
River Park Development	Development	A 664-acre (269-ha) development.	City Of Santa Clarita.	EIR, Construction Expected 2005-2010.
Natural River Management Plan	Management Plan	Approved Natural River Management Plan (NRMP) for the Santa Clara River.	Los Angeles County.	Finalized November 1998.
Newhall Ranch Specific Plan	Development	The Newhall Ranch Specific Plan covers approximately 11,963 acres. It includes 21,615 dwelling units on 4,835 acres, a golf course, parks, schools, and retail and commercial uses. The build-out would occur over 25 to 30 years.	Los Angeles County.	Approved Plan and EIR.
Cross Valley Connector Project	Traffic Improvement	Plan to ease traffic, achieved by the connection of Newhall Ranch Road and Golden Valley Road. The Connector will provide additional travel options from Valencia to Canyon Country and a direct connection between the I-5/SR-126 on the west side of the City to the SR-14/Golden Valley Interchange on the east.	City of Santa Clarita.	Construction in progress.
Valencia Commerce Center	Development	A growing business park planned for 12 million square feet.	City of Santa Clarita.	Construction in progress.
Castaic Junction Project	Traffic Improvement	Improvement project on the Golden State Freeway (I-5)/State Route 126 (SR-126) Interchange in the Santa Clarita Valley.	Santa Clarita Valley.	Construction in progress.
Bouquet Canyon Bridge Widening Project	Traffic Improvement	Widen the Bouquet Canyon Road Bridge from its current 6 lanes to 8 lanes with a protected bike lane.	City of Santa Clarita.	Construction contract awarded June 2004.

Table 4.20-1 Summary of Proposed and Current Projects in the Area of the Applicant's Proposed Project

Project	Project Type	Brief Description	Project Location	Permitting Status and Schedule
Tesoro del Valle Project	Development	The Tesoro del Valle project is part of a 1,700-acre, 1,791-unit master planned community located adjacent to the City of Santa Clarita.	Saugus.	Construction in progress.
West Creek Project	Development	Mixed residential and commercial development in the Santa Clarita Valley area of northern Los Angeles County. The project includes 2,545 housing units, 180,000 square feet of commercial retail space and 46 acres of community facilities.	Santa Clarita Valley.	Approved.
North Valencia II Specific Plan	Development	Annexation of 872 acres for mixed-use development.	City of Santa Clarita.	Approved.

These environmental issue areas are discussed here in the order they are presented in Chapter 4, "Environmental Analysis."

4.20.3.1 Public Safety

Offshore LNG

Several of the potential cumulative impacts that might affect the safety of the public are addressed elsewhere in this section. For example, if Crystal Energy's proposed DWP is approved and is constructed concurrently with the proposed Project, there would be an increase in marine traffic that could lead to a temporary increase in the potential for marine accidents that could then result in public injuries or fatalities. This type of potential effect on public safety is included in the discussion of potential cumulative impacts for marine traffic. Similarly, the potential for increased numbers of vehicle accidents are addressed in the transportation discussion.

If both Cabrillo Port and Crystal Energy's DWP were built, no potential cumulative impacts have been identified for foreseeable accidents involving LNG handling offshore, natural gas transport in offshore pipelines, or at shore crossings. The locations of the DWPs and subsea pipelines are sufficiently far from one another so that an accident affecting one of these DWPs would not cause a simultaneous accident or release from the other. The potential cumulative increase in LNG carrier marine traffic during the Project's operational life due to the presence of an additional LNG DWP could slightly increase marine traffic near the FSRU and the potential frequency of vessel collisions. The potential magnitude of that increase has not been quantified, but mitigation measures noted in Section 4.2, "Public Safety," and Section 4.3, "Marine Traffic," would be expected to keep the estimated annual frequency of such an accident occurring to levels on the order of one in a million to one in ten million. Mitigation measures that would help ensure that such collisions would be rare include requiring that the FSRU and LNG carriers be equipped with Automatic Identification Systems (AIS) transponders, active radar systems, and marine VHF radiotelephone capabilities (AMM PS-2a), and lighting and sound signals (MM MT-6d), and 24-hour visual and radio watch standing (MM MT-6b). The likelihood of an accident occurring with just a single DWP in operation is quite low, and the increase in the probability of such an accident due to the cumulative impacts from multiple DWPs would not measurably increase the potential risks to members of the boating public. Although the probability of an offshore incident associated with the proposed Project is very low, should an incident occur, it would likely cause serious injury or fatality to members of the public (Class I).

The potential for cumulative impacts from simultaneous incidents involving both DWPs, Cabrillo Port and Crystal Energy, would be limited to terrorist attack scenarios targeting more than one marine vessel or offshore facility. Mitigating actions by port authorities, the United States Coast Guard (USCG), local emergency response agencies, and additional forces or actions that might be deployed using military resources would be expected to limit the potential impacts from such an attack. Incident command strategies (ICS) for handling multiple incidents would be expected to allocate response resources to first address any situation posing an imminent hazard to public safety or

the environment. This might result in allocating more resources to handle emergency conditions closer to shore than the Cabrillo Port FSRU. The incident commander would know that the worst-case impacts from the release and ignition of all LNG on board the FSRU would not extend beyond the proposed 2 NM (3.7 km) Area To Be Avoided around the FSRU and could choose to provide no response to the FSRU itself. If this occurred, the Port would sustain damage and the owner/operator would incur financial losses. However, the operation of a second DWP only would contribute an incremental increase to the impacts on public safety compared to the operation of just a single DWP in this area. Although the probability of an offshore incident associated with the proposed Project is very low, should an incident occur, it would likely cause serious injury or fatality to members of the public (Class I).

Offshore and Onshore Natural Gas Pipelines

The potential for cumulative impacts due to routing additional pipelines from the Crystal Energy project within the same corridor is limited to the potential consequences from:

- Intentional damage to one or more natural gas pipelines located close to one another, or
- Initiation of more than one event at different locations along the pipelines.

Under both scenarios, emergency response resources could be stretched to their limits such that control of some or all incidents would be delayed. Historically, a rupture and fire involving one natural gas pipeline in a utility corridor has not caused significant damage or additional releases from nearby natural gas or hazardous liquid pipelines. Mitigation measures described in Section 4.2, "Public Safety," would decrease the potential consequences from an attack on multiple pipelines or locations. Such measures would include, for example, providing additional capabilities for automatic isolation of pipeline sections (MM PS-6c); this would limit the amount of natural gas that could be released, which, in turn, would automatically limit the duration and extent of a natural gas fire from any ruptured segment and would allow fire services to concentrate on extinguishing any secondary fires involving adjacent structures. The impacts to public safety from the rupture of a natural gas pipeline depend on the characteristics of that pipeline, e.g., the pipe diameter and pipeline pressure are used to determine the potential impact radius (PIR) for significant adverse effects from a single pipeline incident. Should more than one pipeline in a particular area be affected, the effects would potentially overlap, but would not combine to produce a greater effect. Although the probability of an offshore or onshore pipeline incident associated with the proposed Project is very low, should an incident occur, it would likely cause serious injury or fatality to members of the public (Class I).

Emergency planning and preparedness efforts involving the Applicant, SoCalGas, and local response agencies would also contribute to reducing the potential consequences from such an event. In other parts of the U.S. where adjacent pipelines were owned and operated by competing firms, problems have arisen when competing pipeline operators adjusted pipeline cathodic protection systems to preferentially cause corrosion of another operator's pipeline routed in the same utility corridor. The

mitigating factor in this case is that the offshore pipelines are not located near any other lines, and all onshore natural gas pipelines in the Project vicinity would be owned and operated by SoCalGas, which would have no incentive to cause accelerated corrosion on one of its lines. Although the probability of an offshore or onshore pipeline incident associated with the proposed Project is very low, should an incident occur, it would likely cause serious injury or fatality to members of the public (Class I).

4.20.3.2 Marine Traffic Impacts

The Project would increase maritime traffic in the area. Flight and marine operations at the Point Mugu Sea Range would increase maritime traffic in the vicinity of the proposed Project. However, operations at Point Mugu are not continuous and Project operations could be adjusted to suit naval operations. Construction of the proposed Project would have to be coordinated daily with the Navy (MM MT-5c) and would be further mitigated by avoiding the Point Mugu Sea Range as much as possible (MM MT-4a), monitoring Navy Securite broadcasts (MM MT-1e) and daily safety briefings (MM MT-3b); therefore, these impacts from Navy operations in conjunction with the construction of the proposed Project would be less than significant and temporary (Class III). During operations of the proposed Project, Navy operations at the SOCAL Range Complex or Point Mugu Sea Range could increase maritime traffic locally or along the LNG carrier routes or it could cause vessel traffic to temporarily cease along the LNG carrier routes. To mitigate the potential cumulative effects of increased vessel traffic, the Applicant would coordinate with the Navy (MM MT-5c), supply the Navy with the LNG carrier schedule (MM MT-5b), and heed Navy Securite broadcasts (MM MT-5a) (Class III).

The Port of Hueneme has recently expanded its refrigerated warehousing capacity and plans another expansion of these capabilities. The current expansion has led to an increase in the number of refrigerated cargo vessels entering the Port and, therefore, vessel traffic to and from the Port of Hueneme has increased. This expansion, in conjunction with the proposed Project, would also increase vessel traffic to and from the Port. Officials from the Port of Hueneme have stated that the port will be able to accommodate the increased vessel traffic; therefore, the cumulative effect would be less than significant (Class III) (Walsh 2004; Berg 2004).

Activities associated with offshore oil and gas leases during construction would be limited to surveys and would have a less than significant effect on marine traffic. Since most activities associated with oil and gas leases are currently pending litigation, it would be speculative to assess their potential cumulative impact on maritime traffic during operations.

If Crystal Energy's proposed deepwater port were licensed, vessel traffic in the area would increase substantially, but temporarily, during the construction phase and would increase on a regular basis during operations involving the transit of LNG carriers and supply vessels, with impacts comparable to the proposed Project. If the proposed Project and Crystal Energy's proposed project were to be constructed simultaneously, then there would be short-term increases in marine traffic in the region. However, given

that the two DWPs would be 21.7 NM (25 miles, 40 km) apart and the proposed offshore pipelines would cross the shore at distance of 7 miles (11.3 km) from each other, increased vessel traffic would be in discrete areas. Since the proposed Project would not use the Port of Hueneme during construction, then the Port could only experience increased vessel traffic from the Crystal Energy Project. In contrast to the proposed Project, construction of the Crystal Energy Project would not involve installation of a pipeline across the vessel traffic separation scheme. Since there would be a net increase in vessel traffic if the two projects were constructed simultaneously, potential impacts are significant (Class II); implementation of the construction-related mitigation measures (MT 1-a through 1g, 3b through 3d, 4a, and 4b) would decrease the potential cumulative impacts to less than significant.

If both projects operated simultaneously, then there would be an additional increase in LNG carrier traffic in the area. The increase in LNG carrier traffic could adversely affect marine traffic because it is anticipated that a safety zone would be needed around each carrier during transit through the area. The LNG carrier routes for the Crystal Energy Project are unknown at this time; however, the Project's LNG carrier routes likely would not enter the vessel traffic separation scheme and as result would not disrupt traffic in major vessel traffic route in the area.

If an LNG terminal is built at the POLB, LNG carriers could use similar vessel approach route to enter the vessel traffic separation scheme. Assuming that the LNG carriers to the POLB would either have a trans-Pacific or south to north route, Project LNG carriers may have overlapping routes in the southern Channel Islands. Due to the fixed safety zones that would be assumed to surround each LNG carrier, vessel traffic could be disrupted regularly with the approach of multiple LNG carriers to the vessel traffic separation scheme. Cumulative impacts would be significant, but mitigable (Class II) with coordination of LNG carrier approaches with the Captain of the Port at the POLB (MM MT-7c).

4.20.3.3 Aesthetic Impacts

Offshore

The presence of vessels and platforms in the Pacific Ocean off the coast of California is not new; the presence of LNG carriers, however, would be new but would be similar to other large ships that currently traverse the area. This is addressed in Section 4.4, "Aesthetics." Large numbers of ocean vessels, naval ships, and recreational ships traveling to and from the ports of Long Beach, Los Angeles, San Diego, Hueneme, and San Francisco travel along the coast. From the nearest point on the coast in Ventura County, Platform Grace is located approximately 10.5 NM (12.1 miles or 19.4 km) offshore and 21.7 NM (25 miles, 40 km) from the proposed FSRU and would not contribute to cumulative aesthetic impacts. However, if the Crystal Energy LNG project were approved, Platform Grace would continue to be used and its presence would have a long-term aesthetic impact.

No additional platforms are planned in the proposed Project area and development of the 36 non-producing leases is currently under litigation. The proposed FSRU would be located farther from shore than the existing platforms and would be an indiscernible object on the horizon. The FSRU resembles a large vessel and more than 5,000 large vessels transit the area annually. When viewed from the shore, the cumulative aesthetic effect of the proposed Project, with the existing platforms and vessel traffic, would be an insignificant long-term cumulative visual impact (Class III).

The long-term presence of the FSRU is identified as a Class I impact for aesthetics associated with the visual expectations of boaters who travel near it (see Section 4.4, "Aesthetics"). There are no mitigation measures that would reduce this to a less than significant impact. No other projects in the immediate vicinity of the FSRU would further degrade the visual experience of boaters; however, the Project would contribute to a significant cumulative impact (Class I).

Onshore

During construction of the pipeline, scenic views in Oxnard and Santa Clarita could be adversely affected by views of construction machinery and activities. While these views would not be aesthetically pleasing, they would be temporary and short-term. No known construction projects would occur simultaneously with the Project. Upon completion of the Project, the original views would be restored. Therefore, the Project would not contribute to a significant cumulative aesthetic impact onshore (Class III).

4.20.3.4 Agriculture and Soil Impacts

According to the California Department of Conservation, the results of farmland mapping in Ventura County from 2000 to 2002 resulted in the reclassification of 2,011 acres (814 ha) of agricultural land, mostly for urban uses. Urban acreage increased by 2,557 acres (1,035 ha). Data from 1990 to 2002 indicate a net increase of more than 11,800 urban acres (4,775 ha) and a decline of almost 8,700 farmland acres (3,520 ha). City reports show that an additional 7,500 acres (3,035 ha) is committed to future non-agricultural use (California Department of Conservation 2004).

The Crystal Energy project would have effects similar to those of the proposed Project. The onshore pipeline would be installed in some agricultural lands, but these areas would only be disturbed temporarily. It is uncertain whether there would be any permanent conversion of agricultural lands for permanent facilities; however, any conversion of agricultural land for the Crystal Energy project is likely to be similar to the proposed Project. The proposed Project impacts in Ventura County would be a permanent conversion of less than 1 acre of prime farmland from agricultural to non-agricultural uses. This, combined with the impacts of the Crystal Energy project, would not be a significant cumulative impact to the already planned farmland conversion (Class III).

Conversion of agricultural land to urban uses has a long history in the Santa Clarita Valley. The amount of irrigated crop acreage farmed by Newhall Land and Farming

Company, the main agricultural landowner in the Valley, has decreased, because of conversion, from 3,224 acres (1,305 ha) in 1965 to 1,008 acres (408 ha) in 1995, which represents a 69 percent reduction over that time period (Impact Sciences, Inc. 2004). This Project would not contribute to any further conversion of agricultural land to non-agricultural land in Santa Clarita and so would not have a significant cumulative impact (Class III).

4.20.3.5 Air Quality Impacts

Point Mugu Sea Range

The proposed Project would add to the cumulative impacts of other projects on maritime traffic in the area that, in turn, would affect air quality. Aerial and marine operations at the Point Mugu Sea Range are ongoing and expanding, which could increase maritime and air traffic in the vicinity of the proposed Cabrillo Port Project and, therefore, could temporarily increase emissions. However, new or expanding operations at Point Mugu Sea Range are transient and would be subject to U.S. Environmental Protection Agency (USEPA) review (Class III). During construction, the cumulative effects of Point Mugu Sea Range operations, in conjunction with the proposed Project, would be temporary and less than significant. The effects during operations would be long-term but less than significant. The effects during operation could be long-term but would be mitigable through measures incorporated into Federal air permits. All cumulative effects on air quality would be mitigated according to Federal air permits issued to each project (Class III).

Offshore Oil and Gas Leasing

No additional platforms are planned in the proposed Project area and development of 36 non-producing leases is uncertain due to pending litigation. In addition there is a moratorium on new offshore leasing. Planned surveys would be transient and would not have significant effects on air quality. If the pending activities occur, they would fall under the Santa Barbara County or Ventura County Air Pollution Control Districts for regulatory review. The cumulative effects of these projects, in conjunction with the proposed Project, would be less than significant because they would be legally mandated with Federal and State air quality mandates and the State Implementation Plan (SIP).

Crystal Energy LNG Facility

If Crystal Energy's proposed deepwater port were licensed, emissions from operations and construction would increase in the area for the long-term (Class II) and would be necessarily subject to USEPA permit requirements and conformity analysis. Therefore, the Crystal Energy project and the proposed Project would result in less than significant cumulative impacts through implementation of mitigation measures required under permits and conformity analyses.

Port of Hueneme Warehouse

The Port of Hueneme has recently expanded its refrigerated warehousing capacity and plans another expansion of these capabilities. The recent expansion is covered under the baseline conditions for this Project (see Section 4.2, "Marine Traffic"). This would enable an increase in the number of refrigerated cargo vessels entering the Port. As with any activity in Ventura County, the proposed new activities resulting from further expansion would be subject to VCAPCD permit requirements and conformity analysis and cannot legally exceed emissions levels established in the SIP; therefore, the cumulative impacts on air quality over the long-term would be less than significant.

Onshore Residential and Commercial Development

Residential and commercial development is planned in Oxnard and Santa Clarita. If construction of any these projects occurred concurrently with the proposed Project, local air quality could be further diminished temporarily. However, any project that exceeded local pollutant thresholds would have to perform and implement a conformity analysis; therefore, the cumulative impacts of the combined projects on air quality would be minimized to the best practical extent and would not cause local air quality to be diminished (Class III).

4.20.3.6 Biological Resources – Marine Impacts

Marine Mammals

Potential cumulative impacts from the proposed Project include the effects of additional vessel or aircraft noise on marine mammals. Ships traveling throughout the area may produce sufficient underwater noise to cause changes in certain whale behavior. According to Carretta et al. (2002), increasing levels of manmade noise in the world's oceans has been suggested to be a habitat concern for whales and particularly for baleen whales, which may communicate using low-frequency sound. Such sounds may not only affect communications but also may cause whales to divert from normal migration paths or to stop feeding or reproductive activities. Such sounds may also reduce the abilities of marine mammals and sea turtles to detect prey or predators and, in the case of odontocetes, the ability to navigate.

Cabrillo Port lies immediately outside of the Point Mugu Sea Range and therefore actions that occur within the Point Mugu Sea Range may contribute to cumulative effects. Operational vessels at the Point Mugu Sea Range or commercial vessels transiting the area may temporarily disrupt whale migrations or feeding. Other activities at the Point Mugu Sea Range include overflights associated with Inert Ordnance Delivery, use of an existing underwater launch site near San Clemente Island for a new soft-landing missile recovery area at San Nicolas Island to support Tomahawk Land Missile Testing, establishment of an inert ordnance delivery area on San Nicolas Island, and the NASA-proposed Hyper-X research vehicle, a Mach-10 aircraft that could provide access to spacecraft. Studies associated with these projects indicate that these activities would not have noise impacts on marine mammals. The proposed Project

1 would increase noise temporarily in the immediate Project site during construction
2 activities. The incremental contribution of the proposed Project would not increase the
3 cumulative effects of noise on marine mammals and the effect would be less than
4 significant (Class III).

5 If the Crystal Energy project is constructed, there would be an overall increase in vessel
6 traffic and noise associated with vessel traffic and operations on the facility (Class II).
7 Since Crystal Energy would be constructed on Platform Grace, the area already has
8 vessel traffic servicing the platform and noise from operations on the platform. The
9 exact change in vessel traffic and noise is not known at this time. However, the
10 greatest effects of increased noise would be during marine mammal migration.
11 Construction activities would represent a significant increase in noise over a short
12 period of time. The proposed Project would not conduct construction during migration
13 season to avoid the potential adverse effects to marine mammals (BioMar-9a). Any
14 increase in vessel traffic increases the potential risk of vessel/marine mammal collision.
15 Through implementation of marine mammal monitoring during construction and
16 operations, the risk of potential collisions is decreased to less than a significant level
17 (BioMar-9b).

18 **Benthic Habitats and Communities**

19 The proposed Project would have temporary impacts on the soft bottom benthic habitats
20 within the immediate Project site. Disturbance of soft sediments is a localized and
21 temporary impact and would not prevent benthic communities from re-establishing
22 within one year of construction impacts. Potential impacts associated with construction
23 and operation would include impacts to soft bottom benthic habitats and communities.
24 These impacts would be temporary and would not contribute any cumulative impacts on
25 the existing benthic communities in the area from other projects such as Crystal
26 Energy's proposed deepwater port or offshore oil and gas exploration, production,
27 and/or decommissioning. No significant cumulative effects would occur (Class III).

28 **Sea Turtles**

29 Impacts on sea turtles include potential collisions with marine vessels and potential
30 entanglement with anchor lines or other necessary lines associated with construction
31 and operations of the Project. Marine operations at the Point Mugu Sea Range are
32 ongoing and expanding; the Port of Hueneme has recently expanded its facilities in a
33 way that would increase marine traffic to the area; and if Crystal Energy's proposed
34 deepwater port were licensed, vessel traffic in the area would increase temporarily
35 during the construction phase and would involve the transit of LNG carriers and supply
36 vessels. The increase in traffic in the area associated with these projects, in
37 conjunction with the proposed Project, may increase the potential for vessel-turtle
38 collisions. Considering the absence of sea turtle sighting reports at or near the Project
39 site, the fact that most sightings in the Southern California Bight are at the limits of their
40 range (except for the leatherback sea turtle) and that sea turtle feeding habitats are not
41 present at the Project site, the proposed Project will not contribute to cumulative
42 impacts on sea turtles (Class III).

Fish and Essential Fish Habitat (EFH)

Significant impacts on fish and EFH are not anticipated from the proposed Project or from the projects described in this section. Fish are highly mobile and some would be expected to leave a construction area temporarily during construction activities, and the fish would be expected to return to the area immediately after construction ceases. Grunion “runs” or spawning could potentially occur during any construction on beaches. Construction activities for the proposed Project would be restricted by the CDFG to times outside of known grunion spawning seasons, and similar restrictions would be expected for other projects that would cross a beach in the Project area. Cumulative impacts on fish would not be expected, nor would they exceed the significance criteria (Class III).

Marine Birds

Seabirds are highly mobile and would be expected to temporarily leave any area where construction activities are occurring. Generally, they are expected to return to the area immediately after construction activities have ceased. No cumulative impact to marine birds is expected from the proposed Project when considered together with the known effects of other projects in the area (Class III).

4.20.3.7 Biological Resources - Terrestrial Impacts

Coastal Zone and Oxnard Plain

The onshore pipeline of the Crystal Energy project would cross the Coastal Zone and Oxnard Plain. Like the proposed Project, HDD would be used for the shore crossing to minimize potential adverse effects to Mandalay Beach. It also is assumed that all drilling equipment would be staged on the Mandalay Beach Generating Station to avoid disturbance to the surrounding dunes. From Mandalay Beach, the pipeline to the Central Road Valve Station is anticipated to follow existing rights-of-way (ROWs). Potential impacts during pipeline installation or HDD could be an increase in sedimentation and erosion, disturbance of special status bird nesting or other sensitive habitat, direct impact to a special status species potentially occurring within the Crystal Energy project footprint, and temporary or permanent changes to wetlands (Class III).

It is anticipated that impacts on biological resources would be temporary and would be mitigated to less –than significant levels by Federal, State, and local permit stipulations. Since the shore crossing for the Crystal Energy project is more than 7 miles (11.3 km) from the Project’s Ormond Beach shore crossing, the effects of the HDD would be temporary, both projects would need to adhere to permitting requirements, and there would be no anticipated cumulative effects on biological resources on the respective beaches or species that frequent both beaches. In general, pipeline installation on the Oxnard Plain for both projects would be through developed or agricultural areas. However, the exact route of the Crystal Energy pipeline is uncertain. The pipelines would converge near or at the Central Valve Station. The onshore pipeline associated with Crystal Energy could transit tree rows, wetlands, or near special status species.

Both pipelines would need to have permits to cross any stream or wetlands, which would stipulate the mitigation necessary. Any cumulative effects on terrestrial biological resources in the Oxnard Plain would be reduced to less than significant through implementation of mitigation measures such as tree avoidance and replacement (MM TerrBio-3b); riparian avoidance and restoration; avoidance and reduction of impacts on wetlands (MM TerrBio-3c); minimization of disturbance at water crossings (AMM TerrBio-6a); species surveys (MM TerrBio-6b); and preparation and implementation of a HDD Contingency Plan (MM WAT-5a).

The Pacific Cove, Senior Condominium, and Sysco Corporation developments are currently under construction in the Project area. Since these projects are not in biologically sensitive areas and would be completed before the proposed Project would be started, they would not contribute to cumulative effects on terrestrial biological resources. The proposed projects for Auto Center and Gonzales Roads development are in previously developed areas or agricultural land and are therefore not anticipated to adversely affect terrestrial biological resources as long as best management practices are employed. The proposed development at the Southeast corner of East Hueneme and Arnold Roads would convert agricultural land to a housing development. It is not anticipated to adversely affect terrestrial biological resources because of its distance from any sensitive biological resources. Therefore, there are no known potential cumulative effects of these developments on terrestrial biological resources.

At Ormond Beach, the California Coastal Conservancy has acquired land and plans to acquire additional property for a wetland restoration project. The feasibility study for this project is under way. The Coastal Conservancy Wetland Restoration Project, if implemented, would have a net positive effect on the biological resources at Ormond Beach in that wetlands and habitat would be restored, so that area would be more attractive to wildlife resources (Class IV). To ensure that the proposed Project does not adversely affect the Coastal Conservancy Project, HDD would be used to cross Ormond Beach. This means that the pipelines would be installed underneath the beach without disturbing the beach surface. In addition, all construction activities would occur on the Reliant Energy Ormond Beach Generating Station. As a result, the cumulative effects of both projects would be a net benefit to wetlands on Ormond Beach, if all Project mitigation measures were implemented.

Santa Clara Valley

Crystal Energy would install a pipeline in the City of Santa Clarita that would have a route similar to the proposed Project. Therefore, many of the impacts would be the same or similar as those described in Section 4.8 "Terrestrial Biology." The potential cumulative effects would be significant (Class II). To avoid, reduce, or minimize impacts associated with construction and operations of the pipeline along the Santa Clara River and San Francisquito Creek, the Applicant plans to use bridge hangs to install pipelines across the Santa Clara River and San Francisquito Creek, and use methods to control soil erosion (AMM TerrBio- 1a and MM TerrBio-1b), and prepare a contingency plan to address potential release of drilling fluids (MM WAT-5a and MM WAT-5b). It is

assumed that the Crystal Energy project would use similar procedures to install their pipelines.

Potentially significant cumulative impacts associated with residential and commercial development in the City of Santa Clarita would include a loss of riparian habitat; disturbance to species using the area; and effects on habitat for the unarmored three-spine stickleback, least Bell's vireo, and arroyo toad and western spadefoot toad. Known future development projects along the Santa Clara River and San Francisquito Creek have developed mitigation measures to avoid or reduce impacts, but the residential and commercial projects would still result in a net loss of biological resources and habitat that could support sensitive species. The construction and installation of the proposed Project pipeline could add to the loss of habitat along the Santa Clara River and San Francisquito Creek. However, quantification of the loss of habitat at the river crossing cannot be completed until the Applicant determines the construction method that will be used to install the pipeline across the rivers.

In order to reduce or minimize the loss of riparian habitat, mitigation measures have been developed. These measures are addressed in TerrBio-3, which include seed bank retention (AMM TerrBio-3a), tree avoidance and replacement (MM TerrBio-3b), and riparian avoidance and restoration (MM TerrBio-3c). Other mitigation measures (TerrBio-4 and TerrBio-6) have been developed to ensure that construction avoids, minimizes or reduces wetland impacts (MM TerrBio-4a) and that minimal wildlife habitat is removed during construction (AMM TerrBio-6a, MM TerrBio 6b, MM WAT 4a, and MM WAT-4b). Lastly, construction activities could harass sensitive species. Mitigation measures have been developed to protect species (MM TerrBio -9b and MM TerrBio -9c) and to establish buffer zones (MM TerrBio-9a) during construction. Construction activities would contribute a relatively small and temporary cumulative impact on biological resources.

4.20.3.8 Cultural Resources Impacts

The Project will avoid impacts on cultural resources and therefore will not contribute to cumulative cultural resources impacts.

4.20.3.9 Energy and Mineral Resources Impacts

Because the Project would not likely affect mineral resources and would have a less than significant impact on local electricity and energy supplies, it is not expected that the Project would contribute to any cumulative impact on either of these resources.

4.20.3.10 Geologic Resources Impacts

The Project is expected to increase sedimentation and erosion temporarily. After being disturbed, sediments would be deposited at or near their original location. Since these effects would be highly localized and limited primarily to the period of construction, cumulative impacts on geology would only occur if other projects were constructed at the same time and in the same location as the proposed Project facilities. Of the projects listed in Table 4.21-1, only some of the terrestrial development/construction

projects could occur at the same time or near the same area. If this occurs, increased sedimentation could result. This cumulative impact would be minimized, however, by ensuring that the pipeline location and burial method avoids areas of sediment transport (MM Geo-8a). Consequently, potential cumulative impacts on geology would be temporary and less than significant (Class III).

Construction of the proposed Project would also add to the loss of fossil resources as a result of surface-disturbing activities associated with existing and reasonably foreseeable projects. However, if significant paleontological resources were identified at any time, construction would be diverted and these resources would not be impacted (Class III). The Project will avoid impacts to paleontological resources and therefore will not contribute to cumulative geological resources impacts.

4.20.3.11 Hazardous Materials Impacts

During construction, the proposed Project could add to cumulative impacts through releases of small quantities of fuels or hazardous materials, or through unearthing contaminated sites in the offshore area. The offshore Project area is heavily used by military, commercial, fishing, and recreational vessels, all of which can potentially release hazardous materials but more than likely small quantities of petroleum products. Several nearby expansions/projects could also increase maritime traffic in the area and thereby increase the potential for additional pollution. It is not possible to quantify the amount of increased pollution that would occur, but the contribution of the Project to the cumulative effect of hazardous materials impacts in the Project area is more than likely small. There would be a net increase in vessel traffic and thereby more likelihood of a spill; potential cumulative impacts of the Project are significant (Class II). However, implementation of mitigation measures (Measures HazMat 1a - 1c, HazMat 3a - 3e, and HazMat 5a - 5e) would decrease the potential cumulative impacts to less than significant.

4.20.3.12 Land Use Impacts

Offshore

A CINMS EIS concerning the expansion of the boundaries of the sanctuary is being developed. Depending on the boundary concept selected, Cabrillo Port may or may not be within the sanctuary boundaries. According to the CINMS, installation of the FSRU and pipeline would not automatically preclude the sanctuary from including the Project area in its new boundaries (Mobley 2004); if the FSRU location were within the boundaries under consideration, this would need to be considered by CINMS when making a final decision about the sanctuary boundaries. However, this EIS is not expected to be finalized for several years. Therefore, the potential cumulative impacts would be speculative at this time.

The subsea pipeline crosses the Point Mugu Sea Range. The U.S. Navy has indicated that the presence of the subsea pipeline would not represent a conflicting land use

(Parisi 2004). Therefore, the incremental contribution of the proposed Project on impacts to the Point Mugu Sea Range is less than significant (Class III).

Onshore

The onshore pipeline would be installed primarily through existing easements or in existing ROWs and therefore little conversion of existing land uses would be required. The one exception is the expansion of the Center Road Valve Station, where about one acre (0.4 ha) of an existing orchard would be acquired and used in the expansion (Class II). The Crystal Energy project would result in the conversion of a similar amount of land because it would require the same facilities. While other projects in the proposed Project area may contribute to the loss or conversion of agricultural lands, with mitigation (MM AGR-1b), the incremental, cumulative contribution of the proposed Project on changes in land use would be less than significant.

4.20.3.13 Noise Impacts

Offshore

The Project would add to cumulative noise impacts in the area. Aerial and marine operations at the Point Mugu Sea Range are ongoing and expanding, which could increase noise in the vicinity of the proposed Project. However, operations at Point Mugu are intermittent. Construction noise from the Project would be temporary, but operations noise from the Project would be continuous. Thus, the noise of Navy operations combined with the operational noise from the FSRU could have temporary adverse effects (Class II). Implementation of mitigation measures MM NOI-2a would decrease the noise generated by the FSRU; therefore, the incremental contribution of the proposed Project to cumulative noise effects would be reduced to less than significant.

No additional platforms are planned in the proposed Project area and development of the non-producing leases is uncertain due to ongoing litigation. In addition, there is a moratorium on new offshore leasing. Current and new activities on these leases would increase noise, but the noise generated would be sufficiently far from these activities such that there would be no anticipated cumulative noise effects. If Crystal Energy's proposed deepwater port is licensed, noise would increase in areas where there would be common vessel traffic, including parts of the vessel traffic lanes and vessels exiting and entering Port Hueneme. The noise increase would be substantial if both projects were constructed concurrently, but this would be a temporary impact. If both projects were to operate simultaneously, noise would increase regularly during operations (Class II). The projects are more than 21.7 NM (25 miles, 40 km) apart; therefore, operational noises from both projects would not have cumulative effects. However, LNG carrier traffic would increase, but no carriers could be less than 1 NM (1.15 miles, 1.8 km) from each other because of the fixed security zone required; therefore, the cumulative effect would be a net increase in noise but not an effect for an individual boat. Since this effect would be temporary, it would be less than significant (Class III).

Port Hueneme recently expanded its refrigerated warehousing capacity and plans another expansion of these capabilities. This would enable Port Hueneme personnel to increase the number of refrigerated cargo vessels entering the port. Therefore, there would be a net increase in vessels in the area and therefore an increase in vessel noise. The cumulative effect of this expansion and the proposed Project would be a net increase in vessel traffic and therefore noise. The increase in noise would be temporary and therefore less than significant (Class III).

The addition of construction vessels, LNG tankers, helicopters, and supply vessels from the proposed Project could contribute to cumulative noise levels for sensitive receptors such as recreational boaters and fishers (Class II). Mitigation measure MM NOI-2a reduces this cumulative impact for the proposed Project to less than significant.

Onshore

The proposed Project would contribute incrementally to cumulative impacts from noise in the area if road, residential housing, or commercial development construction projects were to occur concurrently in the vicinity of the pipeline construction for the Project, but these cumulative impacts would be temporary as well and can be mitigated through implementation of NOI-4a-4q, NOI-5a-5d, and NOI-6a.

4.20.3.14 Recreation Impacts

Offshore

No additional platforms are planned in the proposed Project area and development of the 36 non-producing leases is uncertain due to ongoing litigation. In addition, there is a moratorium on new offshore leasing. Current and new oil and gas activities would increase recreation impacts. Several existing platforms in the area are likely to be removed or decommissioned during the 40-year operational time frame for the FSRU. Crystal Energy is proposing to use an existing platform, which would not add to cumulative visual impacts that would, in combination with the Project, affect the offshore recreational experience (Class III).

If the proposed Project and Crystal Energy's project were developed, there would be an increase in LNG carriers in the area that would have temporary ongoing recreational impacts (Class III). It is common to see large vessels in the Project area, and therefore the addition of the LNG tankers would not be considered significant.

When considered together, these projects would not contribute recreational impacts related to those posed by the Cabrillo Port Project, and in this context, the proposed Project would not incrementally contribute to a significant cumulative impact on offshore recreation.

Onshore

Most of the proposed route would be within existing roadways and bisect agricultural areas. Although there are several projects planned in the vicinity of the proposed

pipeline route that could increase demand for recreational opportunities, the Project would not contribute to cumulative impacts on recreation. The Project's onshore recreational impacts would be temporary, short-term, and related solely to construction traffic congestion. Mitigation measures to reduce these impacts are included in Subsection 4.18, "Transportation." With the implementation of these mitigation measures (MM-1a, 1b, 4a, and 5a), the Project would not contribute incrementally to a significant cumulative impact on recreation (Class III). Project construction also would require closure of recreation trails along the Santa Clara River. Because it would be a temporary closure, the Project would not contribute to a significant cumulative impact (Class III).

4.20.3.15 Socioeconomic Impacts

Offshore

Crystal Energy is proposing to use an existing platform for an LNG facility. The impacts on housing and public services of the additional workers required would be as minimal as are those from the proposed Project (Class III). Since Crystal Energy would be developed at an existing platform, it would not affect commercial fishing (Class III). Other projects in the area would not contribute to cumulative socioeconomic impacts. When considered in the context of other offshore projects, the Project would not contribute significantly to cumulative socioeconomic impacts in the Project area (Class III).

Onshore

Several construction projects in the vicinity of the proposed pipeline route are planned, some of which would be under construction during the same time as the proposed Project pipeline construction. Overall, it is not expected that these projects would require significantly more public services during construction (Class III). As these other projects are primarily residential, commercial, and industrial and do not require construction workers with the specific skills needed for the proposed Project, most of the workers for these other projects would probably be permanent residents. Because the proposed pipeline would temporarily increase the population by about only 368 persons during construction, the long-term increase in population would not be significant when viewed in the cumulative context of the whole Project area (Class III).

4.20.3.16 Transportation

The Project is not expected to add significantly to the cumulative impact on transportation. No public roads would be permanently eliminated or created by Project activities. No public road expansion projects are planned in the Project area at this time.

Other road maintenance activities in the Project area could include repaving, clearing road shoulders, and similar activities. If these activities occur at the same time and place as the Project, short-term cumulative impacts to traffic could occur (Class II). These impacts would be limited to temporary disruptions such as slower traffic or

detours lasting several days at a time. Mitigation measures Trans 1-a, Trans 1-b, Trans-5a, and Trans 6-a reduce this cumulative impact to less than significant.

It is unlikely that the proposed Project would be allowed to be constructed in roadways at the same time another project is under construction in the same roadway. However, if this were to occur, cumulative impacts resulting in restricted access could occur (Class II). MM Trans-1a would reduce this cumulative impact to less than significant.

4.20.3.17 Water Quality and Sediment Impacts

Offshore

The proposed Project would result in temporary discharges to marine and surface waters. Discharges from the Crystal Energy project, offshore oil platforms, industrial facilities, power generating facilities, and municipal wastewater could also impact water resources. Under normal conditions, the discharges from construction and operation of the FSRU would be relatively small and highly localized, would dissipate rapidly, and would not contribute to a cumulative impact (Class III). Additionally, the activities that would result in discharges to marine water would require adherence to permit conditions that regulate the quality of the discharges. Therefore, any adverse effects from normal operations will contribute negligibly to marine water quality cumulative impacts.

Cumulative impacts on marine water resources will occur as a result of sediment displacement only if FSRU and pipeline installation is concurrent and nearby another offshore construction project (Class III). There are no other local offshore construction projects known to have a similar schedule. Furthermore, impacts as a result of sediment displacement would be highly localized. Therefore, cumulative impacts to offshore water resources from the cumulative projects would not be significant (Class III).

Onshore

A wetlands restoration project may take place at Ormond Beach in the foreseeable future. However, this would not be in the same area of the proposed Project and the net impact of the restoration would be beneficial to water quality and sediments. Although construction of the proposed Project may occur simultaneously with other projects, along the shoreline potential erosion will be minimal and localized and is not likely to contribute to cumulative adverse effects on water quality. Therefore, the cumulative effects on onshore water resources as a result of construction at the shore crossing would be less than significant (Class III).

Based on permits and existing studies for the identified projects and the locations and types of water resources in the onshore Project area, the proposed Project would not contribute to any further degradation of water quality, primarily because much of the onshore ROW occurs within an existing easement, a roadway, or in a road shoulder. Additionally, activities that would result in temporary or short-term discharges to surface water would require adherence to permit conditions; therefore, the cumulative effects for onshore water resources would be less than significant (Class III).

4.20.3.18 Environmental Justice

In the event of a pipeline accident, the Project would result in potentially significant long-term public safety impacts that could disproportionately impact a minority community: the mobile home parks located on Pidduck and Dufau Roads near MP 4.1 of the proposed Center Road Pipeline, an area where a community with more members below the poverty level than Ventura County resides and where the population is mostly Hispanic or Latino. The upgrading of pipeline construction to meet the criteria for Class 3 areas, and the additional inspection, testing, reporting, and public education required for this designated high consequence area (HCA) would reduce the potential frequency of an incident occurring in this area, and the installation of additional automatic shutdown valves to isolate pipeline sections in the event of a rupture, or reducing the operating pressure of the pipeline would reduce the potential consequences of an incident. However, in the unlikely event that a pipeline incident occurred, this could still result in a serious injury or public fatality (Class II).

The Crystal Energy project would include pipelines that also traverse the City of Oxnard, Ventura County, and the City of Santa Clarita. High Consequence Areas (HCAs) would be determined for this project and evaluated in a separate EIS/EIR for that project.

4.20.4 References

Berg, William. June 8, 2004. Director of Marketing, Port of Hueneme, Oxnard Harbor District, telephone conversation regarding large commercial traffic in Port Hueneme with Louise Flynn, Ecology and Environment, Inc., Anchorage, Alaska.

Brand, Peter. October 11, 2004. Planner, California State Coastal Conservancy. Telephone conversation regarding planned land use and acquisition at Ormond Beach with Noreen Roster, Ecology and Environment, Inc., Portland

California Department of Conservation. June 15, 2004. Greater L.A. Area Loses Agricultural Acreage, Nr 2004-18
http://www.consrv.ca.gov/index/news/2004%20News%20Releases/NR200418_LA_Area_Farmland.htm

Carretta, J. et al. 2002. U. S. Pacific marine mammal stock assessments. NMFS Southwest Fisheries Science Center. NOAA Technical Memorandum, NOAA-TM-NMFS-SWFCS-346.

Impact Sciences, Inc. 2004. Riverpark Draft Environmental Impact Report, SCH-2002091081, Prepared for the City of Santa Clarita Planning and Building Services.

Mobley, Chris. August 11, 2004. Manager, Channel Islands National Marine Sanctuary. Meeting regarding Park Boundary and Management Plan with Cheryl Karpowicz, Adrienne Fink and Noreen Roster, Ecology and Environment, Inc.

- 1 Parisi, Tony. U. S. Navy, October 14, 2004. Telephone conversation about ongoing
2 operations at the Point Mugu Sea Range with Louise Flynn, Ecology and Environment,
3 Inc.
- 4 Parks, R. Cmdr, U.S. Navy. October 7, 2004. electronic mail concerning FLETA HOT
5 to Louise Flynn, Ecology and Environment, Inc.
- 6 Tahimic, Robert, U.S. Navy. October 7, 2004. electronic mail concerning operations at
7 the San Clemente Island Tactical Training Range to Louise Flynn, Ecology and
8 Environment, Inc.
- 9 U.S. Department of Defense. 2002. *Final Environmental Impact Statement/Overseas*
10 *Environmental Impact Statement, Point Mugu Sea Range*. Prepared by the U.S.
11 Department of the Navy, Naval Air Systems Command, Naval Air Warfare Center
12 Weapons Division, Point Mugu, California
- 13 Walsh, P. October 13, 2004, personal communication with Louise Flynn, Ecology and
14 Environment, Inc., telephone conversation concerning the impact on the Port of
15 Hueneme from the addition of Cabrillo Port vessels.